

CTO

CUSTOM-FIT CUSTOMER REWARDS

The latest trend in loyalty programs 10

WHO WILL BE THE DATA CHAMPION?

Role of big-data chief is up for grabs 12

FROM CRUNCH TO HUNCH

Focus analytics on business problems 16

WHEN TABLET PILOTS GO OFF COURSE

The dirty little secrets of iPad rollouts 18

BUSINESS TECHNOLOGY LEADERSHIP

CIOS may have good reason to reject a proposal or nix a technology request, but an inept or frequent 'no' will get you sidelined 22

BY KIM S. NASH

PLUS

Peek Into the Future

Implementing predictive analytics? Get the right data and expect culture shock 30

www.cio.com

December 1, 2013 \$9.00

IT Confronts Hybrid Cloud Data Management Challenge

Get ready, get set, go: We are now officially entering a multi-cloud world. Increasingly, companies deploy more complex models of the cloud than the original premise, which entailed hosting all data and infrastructure in massive public clouds from the likes of Amazon, Microsoft, or Google.

But CIOs pondered whether it was truly viable for their large distributed enterprises to run 100% of their operations on externally hosted SaaS apps such as Salesforce. For many organizations, the answer is: Not quite. Unique requirements for performance, compliance, security, and functionality, including the need to continue to support legacy applications, have resulted in a muddier picture of the cloud in corporate IT.

As CIOs gained clarity on their needs and requirements for cloud computing, the vendor community responded with an expanding array of cloud-deployment models. In fact, a recent global survey of IT executives finds that many organizations are already deploying multiple cloud models and that they expect to run more than half of all corporate IT services in the cloud three years from now. The majority of these companies are seeing game-changing benefits from the cloud, such as reduced provisioning times, increased efficiencies, and lower costs. That's excellent news.

But what is the cloud now? It's public, it's private, it's hybrid, it's single tenant, and it's multitenant: It's a complete melting pot of models at some organizations. This brings up a potential manageability problem, especially with regard to storage and data management. As a result, CIOs must lead their IT organizations into the era of cloud brokerage. IT departments have to work as the middleman between their companies and cloud service providers, managing workloads and moving data smoothly among private, public, and hybrid clouds.

A multicloud architecture enables the flexibility and price optimization that companies need, yet managing this environment is like peeling an onion. There are major overlapping issues for IT departments to overcome, including data control and management, maintaining consistent SLAs, strong governance, and security. The IT executive survey

indicates that although it's highly important for companies to offer consistent SLAs across cloud environments (83% agree), the majority of participants struggle in that effort.

Moving from managing existing internal private clouds to integrating with public clouds is not a simple process, either. There are organizational and governance changes that have to occur on the business side, such as forecasting consumption for large numbers of people across a distributed enterprise. IT challenges include migrating data across clouds and adjusting to the new way of running IT with less control over data management.

CIOs are particularly worried about minimizing downtime, having the flexibility to buy and consume resources as needed from their choice of providers, allowing users to react to changing business needs by scaling IT resources up and down, achieving expected cost savings, and realizing faster provisioning times.

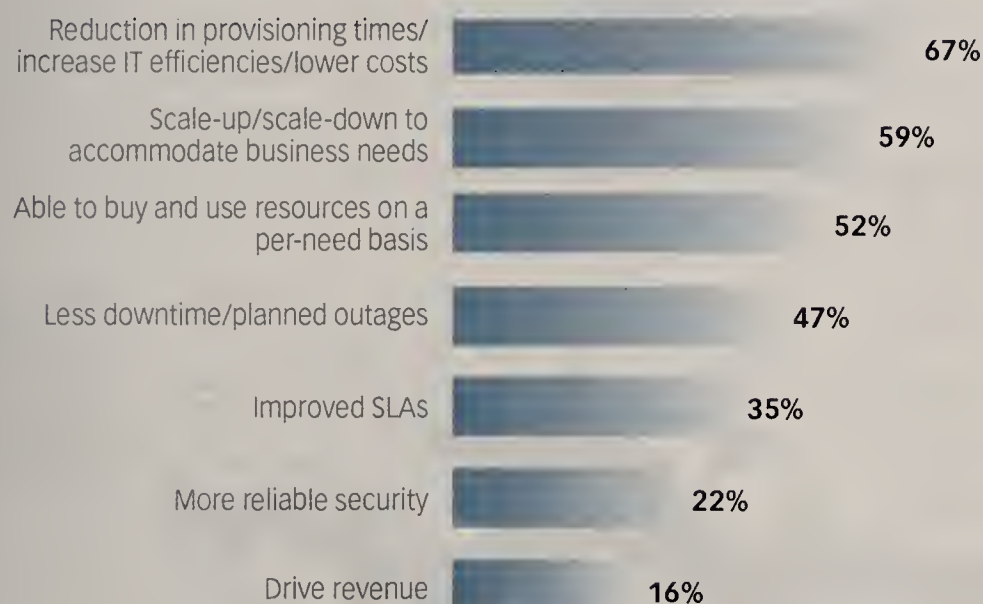
Critically, the IT department needs to expand its notion of agility beyond the data center, to incorporate workloads that run in an external cloud. Although this adds considerable complexity to agile IT, it's imperative to help meet dynamic shifts in business requirements. Agility in hybrid cloud environments usually means changing the mix of cloud services and providers according to business priori-

The evolving role of IT as cloud broker will require:

- Understanding risk, developing a clear strategy, and effectively interfacing with cloud service providers.
- Overcoming the obstacles to managing data and storage across multiple cloud environments.
- Retaining control of data regardless of where it resides and avoiding vendor lock-in as a strategy for control.



How Organizations Have Benefitted from Cloud Deployments To Date



SOURCE: IDG RESEARCH SERVICES, OCTOBER 2013

ties and performance parameters. That's become fairly standard these days with cloud providers, but controlling the data layer is not so straightforward. When IT must move data between different clouds, it must do so efficiently while maintaining the desired policies for data security, performance, and data protection. The burden of data management and control has become the primary obstacle to more effective use of the public cloud.

However, there are ways to overcome the data management obstacles, including:

- Maintain a common set of storage services to more effectively provision resources and manage data across multiple cloud environments. The Data ONTAP® storage operating system from NetApp is designed to provide that common data platform and serve as the data management foundation for a hybrid cloud environment.

- Have dynamic data portability. This is the capability to seamlessly move data between cloud resources using highly efficient replication and data movement technology. Data ONTAP provides this capability so that users can create innovative cloud solutions and avoid vendor or cloud-provider lock-in.

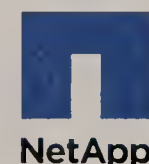
- Provide customer choice, which is here to stay in the cloud. Companies should focus on best-in-class technologies and a broad ecosystem of cloud providers to manage risk, optimize costs, and deliver flexibility. NetApp® technology options for private clouds span the IT industry's major virtualization frameworks and cloud management options. NetApp also enables more than 175 public cloud service providers with infrastructure and solutions built on Data ONTAP. In addition it is the only major storage vendor developing a broad, multipartner ecosystem among hyper-scale cloud providers such as Amazon Web Services and others

At a higher level, IT is still in the sometimes painful throes of transi-

tion. For a decade now, industry observers have discussed the need to transform IT organizations due to the disruptions from cloud computing and services-based IT. Yet in hybrid, multicloud environments, those changes can be even more profound; the role of IT as a cloud broker will continue to evolve and grow. IT must shield business users from this complexity, however, and focus on understanding and meeting their needs. Fostering and building an agile, best-in-class systems approach incorporating both private and public cloud resources has become the model for the future. ■

For further insight into the opportunities and threats of the multi-cloud, hybrid environment, download the full white paper "**Hybrid Clouds Require a Transition from IT Service Builder to IT Service Broker**" here: www.cio.com/whitepapers/netapp.

© 2013 NetApp, Inc. All rights reserved. No portions of this document may be reproduced without prior written consent of NetApp, Inc. Specifications are subject to change without notice. NetApp, the NetApp logo, Go further, faster, and Data ONTAP are trademarks or registered trademarks of NetApp, Inc. in the United States and/or other countries. All other brands or products are trademarks or registered trademarks of their respective holders and should be treated as such.



Step up. Scale out.

Introducing IBM NeXtScale System.



The rising demand for intelligence from increasing data volumes, and the need for greater efficiency in the cloud, may leave today's data centers inadequate for your requirements. Introducing IBM NeXtScale System™ – an easy-to-deploy, cost-effective, hyperscale computing platform that focuses on maximizing density, performance and efficiency for lower operating costs. Its simple and open design integrates with your existing infrastructure and has the capability to help reduce onboarding time by 75% with optional IBM Intelligent Cluster.™¹

Powered by the new Intel® Xeon® processor E5-2600 v2, IBM NeXtScale System packs 3x the cores² versus previous generation 1U rack servers, and up to 37% greater performance³ and 36% better energy efficiency⁴ versus previous generation systems. This high performance system allows you to obtain maximum value from your data by bringing IBM's high performance computing experience to work for you.



See how IBM NeXtScale System can help you optimize your data center for compute-intensive workloads.

Download the Clabby report at ibm.com/systems/nextscale

Or scan the QR code with your smartphone to learn more about IBM NeXtScale System.



¹ Based on IBM comparison of configuration and setup by customer onsite versus delivered by IBM using Intelligent Cluster service, which is an optional feature available at additional cost.

² 3x cores based on industry standard 42U rack comparing 42 1U x3550 M4 rack servers with 2 Intel® Xeon® E5-2600 processors 8 cores each = 672 cores vs. 84 NeXtScale System nx360 m4 nodes with 2 Intel Xeon E5-2600 v2 processors 12 cores each for 2016 total cores.

³ SPECint_rate_base2006 - 669 on IBM iDataPlex dx360 M4 (Intel Xeon E5-2690) vs. 918 on IBM NeXtScale nx360 M4 (Intel Xeon E5-2697 v2). www.spec.org. Results current as of 9/20/13.

⁴ SPECpower_ssj2008 - 5392 on IBM iDataPlex dx360 M4 vs. 7347 on IBM NeXtScale nx360 M4. www.spec.org. Results current as of 9/20/13.

IBM hardware products are manufactured from new parts or new and serviceable used parts. Regardless, our warranty terms apply. For a copy of applicable product warranties, visit http://www.ibm.com/servers/support/machine_warranties. IBM makes no representation or warranty regarding third-party products or services. IBM, the IBM logo, ibm.com, NeXtScale System and Intelligent Cluster are trademarks or registered trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. For a current list of IBM trademarks, see www.ibm.com/legal/copytrade.shtml. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries. SPECint and SPECpower_ssj are trademarks of the Standard Performance Evaluation Corporation (SPEC). All prices and savings estimates are subject to change without notice, may vary according to configuration, are based upon IBM's estimated retail selling prices as of 9/30/13 and may not include storage, hard drive, operating system or other features. Reseller prices and savings to end users may vary. Products are subject to availability. This document was developed for offerings in the United States. IBM may not offer the products, features or services discussed in this document in other countries. Contact your IBM representative or IBM Business Partner for the most current pricing in your geographic area. ©2013 IBM Corporation.

Start

From the Editor in Chief **4**
 Chatter **4**
 From the CEO **6**
 Numbers You Need **8**

**4****10****Grow**

INNOVATION & BUSINESS VALUE

Retailers take loyalty programs to the next level by offering personalized rewards **10**
 Monsanto throws its hat in the big-data ring **11**
 CIOs must fight to lead data efforts **12**
 Pros and cons of HTML5 versus custom apps **14**

Run

LEADERSHIP & OPERATIONAL EXCELLENCE

How to keep data scientists focused on the big picture—solving business problems **16**
 Learn the dirty little secrets everyone is keeping about iPad pilots **18**
 Lenovo enters the enterprise server market **20**

**16****30****Connect**

PEER ADVICE

Adopting predictive analytics? Be ready for a lot of prep work on the data and the culture **30**
 Three ways to learn about innovation, business skills and global talent management **32**

FinishIndex **34**

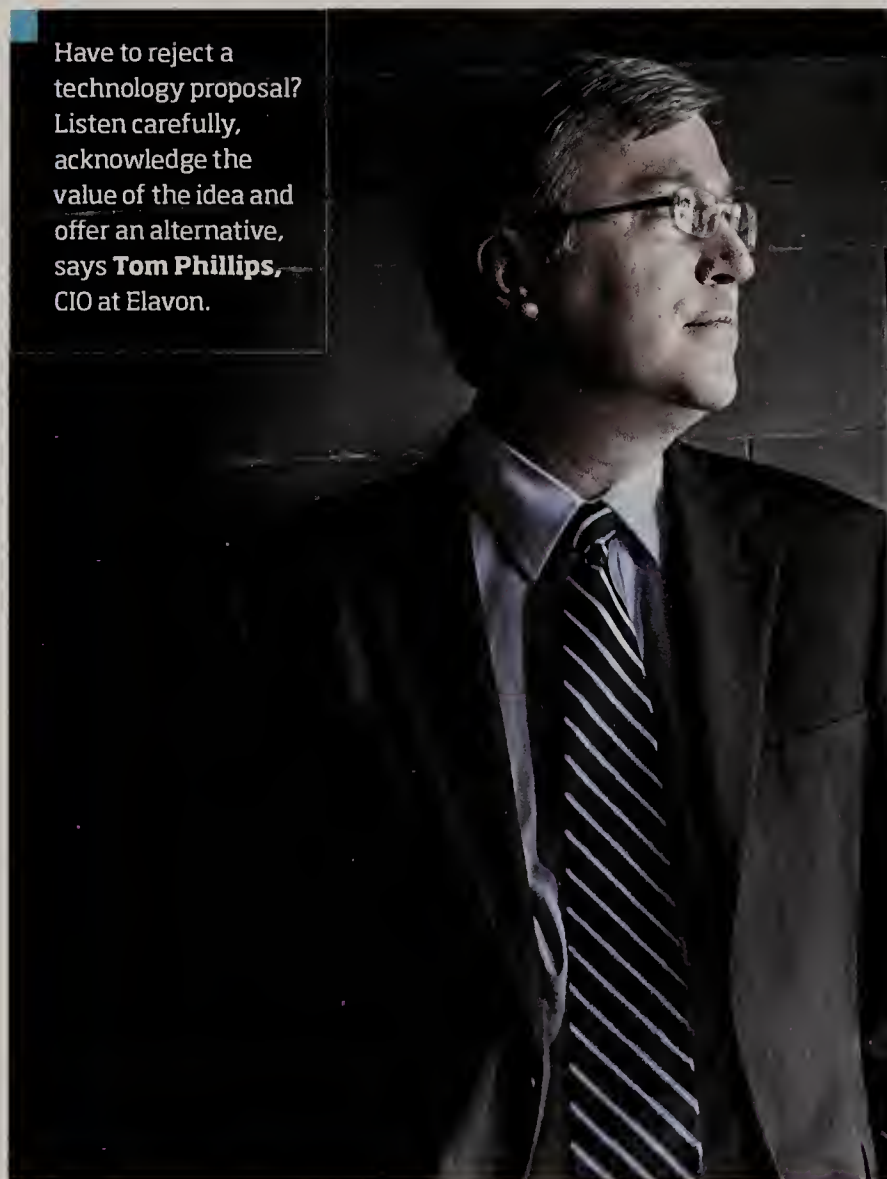
Sweet dreams are made of... what, exactly? **36**

**36****The Politics of No** **22**

COVER STORY CIOs may have good reason to reject a proposal or nix a technology request, but an inept or frequent 'no' will get you sidelined

BY KIM S. NASH

Have to reject a technology proposal? Listen carefully, acknowledge the value of the idea and offer an alternative, says **Tom Phillips**, CIO at Elavon.





FROM THE
EDITOR IN CHIEF

start

CHATTER

Getting Past 'No'

"Having the courage to say no is important. People will wonder who you really are if you're always saying yes to everything."

Of all the great advice served up in our cover story about how CIOs can manage "The Politics of No" (Page 22), that one quote from executive coach Jackie Sloane really crystallized the issue for me.

Developing the art of polite refusal—especially when declining a request from a fellow business executive—is a CIO leadership skill of the highest order. It speaks to your personal reputation for inspiring trust, building relationships and communicating honestly.

"Veteran CIOs find that by using tools such as skillful conversation, deep governance and sense-and-respond intelligence, denial doesn't have to kill a career," Kim S. Nash writes. Done wrong, there's no question that a "no" can sharpen battle lines between IT and business units. It can dilute a CIO's authority. It can send shadow IT on a rampage of defiant workarounds.

That's especially perilous for a CIO career path these days, as your role is expanding in so many directions, including into new revenue-generating parts of the business. "When we say no, it can either directly—or in the eyes of business executives—mean we are inhibiting business performance," says CIO Tom Phillips of Elavon. "It becomes quite an emotive topic."

Moving past emotion into reasonable, fact-based discussions is the ultimate goal, of course. But it's so easy to say, so much harder to do. CIOs who succeed must raise both sides of the conversation to new heights of communication and understanding. That's what CIO Diana McKenzie of Amgen did when she set out to elevate IT's understanding of business unit operations at this \$16.6 billion biotech company.

McKenzie launched a mapping project in which business people showed their IT colleagues exactly how each department operated. Afterward, the technology decision-making process benefited from new levels of IT-business cooperation. And an even bigger sign of success followed: The maps were used in a C-suite workshop to define Amgen's long-range initiatives.

That's one of many impressive examples from our story, which collects the best ideas and most salient experiences of current and former CIOs. The unifying thread in all their advice? Upfront, face-to-face communication.

"With some executives I've seen, [decisions] are about control and their being right," says Becky Blalock, former CIO of Southern Co. "Make it so someone's not losing face when you say no."

Maryfran Johnson, Editor in Chief, CIO Magazine & Events
mfjohnson@cio.com

Marketing Goes Digital

Seventy percent of companies have **chief marketing technologists**, and 19 percent of them report into IT, according to a Gartner survey. This trend demonstrates the blending of **marketing and IT**, and the need for a **more collaborative relationship** between the CIO and chief marketing officer. Gartner analyst Jennifer Beck says that the need for businesses to become more **data-driven** and the rise of the **digital sales channel** are fostering a sense of urgency about the IT-marketing merger. www.cio.com/article/741623

Healthcare.gov Lessons

The rocky launch of the federal **Healthcare.gov** site serves as a reminder of several steps any IT outsourcing customer should take to ensure a smooth rollout. Customers should do robust **capacity planning** to prepare for high demand, **simplify processes** as much as possible, and make the **customer experience** a high priority. www.cio.com/article/741453

Outsourcers Shaken Up

The **Infosys scandal**—the Indian IT service provider was accused of visa fraud and abuse and agreed to pay \$34 million to settle the charges—could force outsourcers to reconsider their business models. The case sheds light on how today's outsourcing model increasingly depends on so-called "**landed resources**" (foreign IT employees brought to U.S. sites) to run smoothly and keep costs low. Outsourcers can **expect increased scrutiny of visa applications**, making it tougher for vendors to get visas. This may lead to moving more IT work **offshore** if it becomes too costly and complex to bring foreign labor to the U.S. www.cio.com/article/742344

Compiled by Staff Writer Lauren Brousell.
Have a comment about a story in this issue? Go to www.cio.com/issue/20131201 or write to letters@cio.com.

SUPERMICR[®] MicroCloud

24/12/8 Modular UP Server Nodes in 3U

High-Density • High-Performance • High-Efficiency • Easy-to-Service • Cost-Effective
Optimized for Cloud Computing and Web 2.0

New!

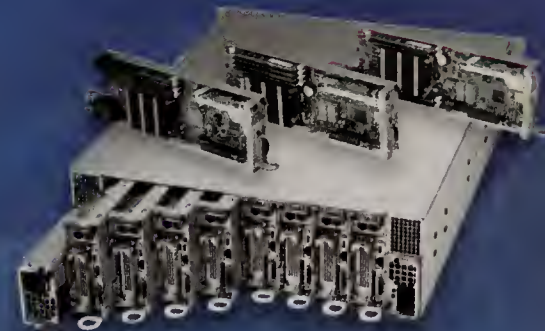


intel® Xeon® processor
E3-1200 v3 series

24 Hot-pluggable Nodes in 3U
2 nodes per each of 12 hot-pluggable sleds
(Front I/O)
SYS-5038ML-H24TRF



12 Hot-pluggable Nodes in 3U
(Front I/O)
SYS-5038ML-H12TRF
SYS-5037MC-H12TRF



8 Hot-pluggable Nodes in 3U
(Rear I/O)
SYS-5038ML-H8TRF SYS-5037MC-H8TRF
SYS-5037MC-H86RF SYS-5037MR-H8TRF

- Latest Intel® Xeon® processor E5-2600 v2, E3-1200 v2, and E3-1200 v3 product families
- Up to 128GB ECC DDR3-1600MHz memory per node
- High density with 24/12/8 hot-pluggable UP nodes in 3U
- Excellent expansion capability with up to 1 PCI-E 3.0 x8 LP slot per node
- Up to 2x 3.5" or 4x 2.5" SATA 3.0 (6Gbps) HDDs per node
- Dual Gigabit Ethernet LAN per node
- High Efficiency Platinum Level (94%) 1+1 redundant power supplies
- IPMI 2.0 remote management plus KVM with dedicated LAN per node
- 130W high-performance CPU support available



www.supermicro.com/MicroCloud

© Super Micro Computer, Inc. Specifications subject to change without notice.
Intel, the Intel logo, Xeon, and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries.
All other brands and names are the property of their respective owners.





FROM THE **CEO**

Lessons for 2014

With the new year quickly approaching, it is always nice to reflect a bit while looking forward to the year ahead. Given how technology continues to affect every element of our life, personal and professional, the following quotes are worth thinking about as we set our goals for the coming year.

"I think frugality drives innovation, just like other constraints do. One of the only ways to get out of a tight box is to invent your way out." —*Jeff Bezos, CEO of Amazon.com* **Lesson:** You don't need millions to be innovative.

"In the old world, you devoted 30 percent of your time to building a great service and 70 percent of your time to shouting about it. In the new world, that inverts." —*Jeff Bezos* **Lesson:** Product, design and marketing are equal partners.

"We don't compete against competitors, we compete against market transitions." —*John Chambers, chairman and CEO of Cisco Systems* **Lesson:** Leaders are market-driven.

"You have to be very nimble and very open-minded. Your success is going to be very dependent on how you adapt." —*Jeremy Stoppelman, CEO of Yelp* **Lesson:** Adapt or die.

"The interesting products out on the Internet today are not building new technologies. They're combining technologies. Instagram, for instance: photos plus geolocation plus filters. Foursquare: restaurant reviews plus check-ins plus geo." —*Jack Dorsey, co-founder of Twitter, and founder and CEO of Square* **Lesson:** The conventional and mobile Web are givens. What combinations will attract your customers?

"When all is said and done, a lot more is said than done." —*Lou Holtz, retired American football coach* **Lesson:** Stop talking and start doing.

"Every step of the way, I made it a point to under-promise and over-deliver. In the long run, that's the only way to ensure security in any job." —*Howard Schultz, chairman and CEO of Starbucks* **Lesson:** Know the power of managing expectations and delivering on them.

"By giving people the power to share, we're making the world more transparent." —*Mark Zuckerberg, co-founder, chairman and CEO of Facebook* **Lesson:** Transparency is paramount.

"Expect the unexpected. And whenever possible, be the unexpected." —*Jack Dorsey* **Lesson:** Be prepared and be bold.

Best wishes for a magnificent 2014!

Michael Friedenber, President and CEO
mfriedenberg@cio.com



PRESIDENT AND CEO Michael Friedenber
GROUP PUBLISHER Bob Melk
PUBLISHER Adam Dennison
PUBLISHER EMERITUS Gary J. Beach
CHIEF CONTENT OFFICER John Gallant

EDITORIAL

EDITOR IN CHIEF

Maryfran Johnson

EXECUTIVE EDITOR

Mitch Betts

MANAGING EDITOR

Kim S. Nash

SENIOR EDITOR, COPY AND PRODUCTION

Colleen Barry

STAFF WRITER

Lauren Brousell

CONTRIBUTORS

Randy Bean, Mary Brandel, Chris Kanaracus,
Zach Miners, Stephanie Overby, Mary K. Pratt,
Agam Shah, Minda Zetlin

CONTRIBUTING EDITORS

CIO EXECUTIVE COUNCIL

VICE PRESIDENT, STRATEGY

Rick Pastore

DIRECTOR OF STRATEGIC CONTENT

Tim Scannell

DESIGN

ART DIRECTOR

Terri Haas

ONLINE EDITORIAL

EDITORIAL DIRECTOR

Brian Carlson

EXECUTIVE EDITOR

Dan Muse

ONLINE MANAGING EDITOR

Rich Hein

SENIOR EDITORS

Brian Eastwood, Al Sacco

SENIOR ONLINE WRITERS

Tom Kaneshige, Thor Olavsrud

ASSOCIATE ONLINE EDITOR

Sheryl Hodge

STAFF WRITER

Sharon Florentine

RESEARCH

RESEARCH DIRECTOR

Carolyn Johnson



CXO MEDIA INC.

©CXO Media Inc

INTERNATIONAL DATA GROUP

CHAIRMAN OF THE BOARD

Patrick J. McGovern

IDG COMMUNICATIONS, INC.

CEO

Michael Friedenber



CONTACT US

WHO COVERS WHAT www.cio.com/staff

EMAIL letters@cio.com

PHONE 508.872.0080

THE CLOUD

LOVES A WINNER.

With the cloud as your ally, we predict an unprecedented winning streak for your business. Because a smartly managed cloud means an unstoppable cloud. And in our experience, unstoppable tends to mean you win. bmc.com/thecloud



Feuding in the C-suite

Survey finds that CIOs and marketing chiefs are squabbling like Hatfields and McCoys **BY MINDA ZETLIN**

An Accenture survey of 252 CIOs and 405 CMOs shows that, despite IT's years of work toward business alignment, it remains far removed from marketing.

Apparently, more IT executives care about the IT-marketing relationship than marketers do: 77 percent of CIOs believe there's a need for alignment between marketing and IT, but only 56 percent of CMOs feel the same way. And few are happy with their relationships as they stand. Only 11 percent of CIOs and 13 percent of CMOs report that there's enough collaboration between the two disciplines in their organizations.

The survey results read like a heated argument. Only 51 percent of CMOs say the CIO understands marketing requirements, while 40 percent of CIOs counter that those requirements change too often. Nearly half of CIOs, 49 percent, complain that marketing brings in technology without considering IT standards. But many CMOs like it that way: 45 percent want marketing employees to control data and content without IT intervention, and 35 percent say they'd prefer to buy cloud-based software and bypass IT.

The two groups also worry about completely different

things. CIOs' top concern is IT complexity and integration. CMOs' main worry is that their companies aren't investing enough in digital marketing channels.

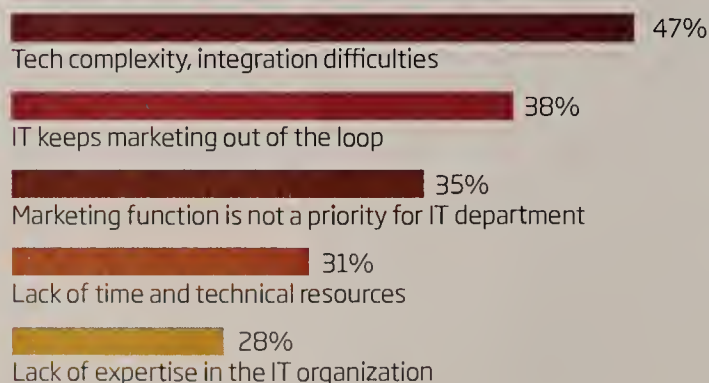
Frank Cutitta, research associate for the CSC Leading Edge Forum, says CIOs worry marketing will cut them out of the corporate ecosystem, while "CMOs see IT as the land of slow and no." He says the solution is for marketing to hire technology pros—as marketing departments everywhere are doing—and for IT to hire its own marketers.

There are organization-wide benefits to greater alignment between the two groups. A recent PricewaterhouseCoopers study showed that the companies where CIOs and CMOs have the best working relationship consistently outperform the average in revenue growth, margin growth and innovation. Chris Curran, a PwC principal, says C-suite executives need to go beyond paying lip service to cross-departmental ties and develop "deep problem-solving relationships, which are the relationships that can have an effect in the marketplace."

Minda Zetlin is a business technology writer based in New York.

Marketing's Complaints

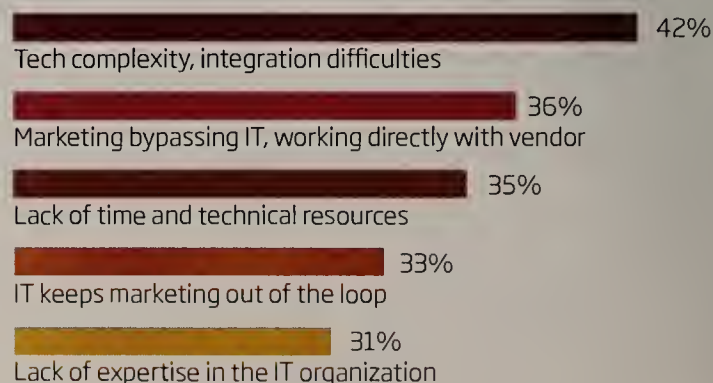
CMOs say these internal obstacles make it hard to implement marketing technology



MULTIPLE RESPONSES ALLOWED

CIO Gripes

IT execs say these obstacles make it hard to give marketing what it wants



MULTIPLE RESPONSES ALLOWED

Connect.
Share.
Give.
Take.
Solve.
Save.
Smile.
Unify.

Introducing Unify.

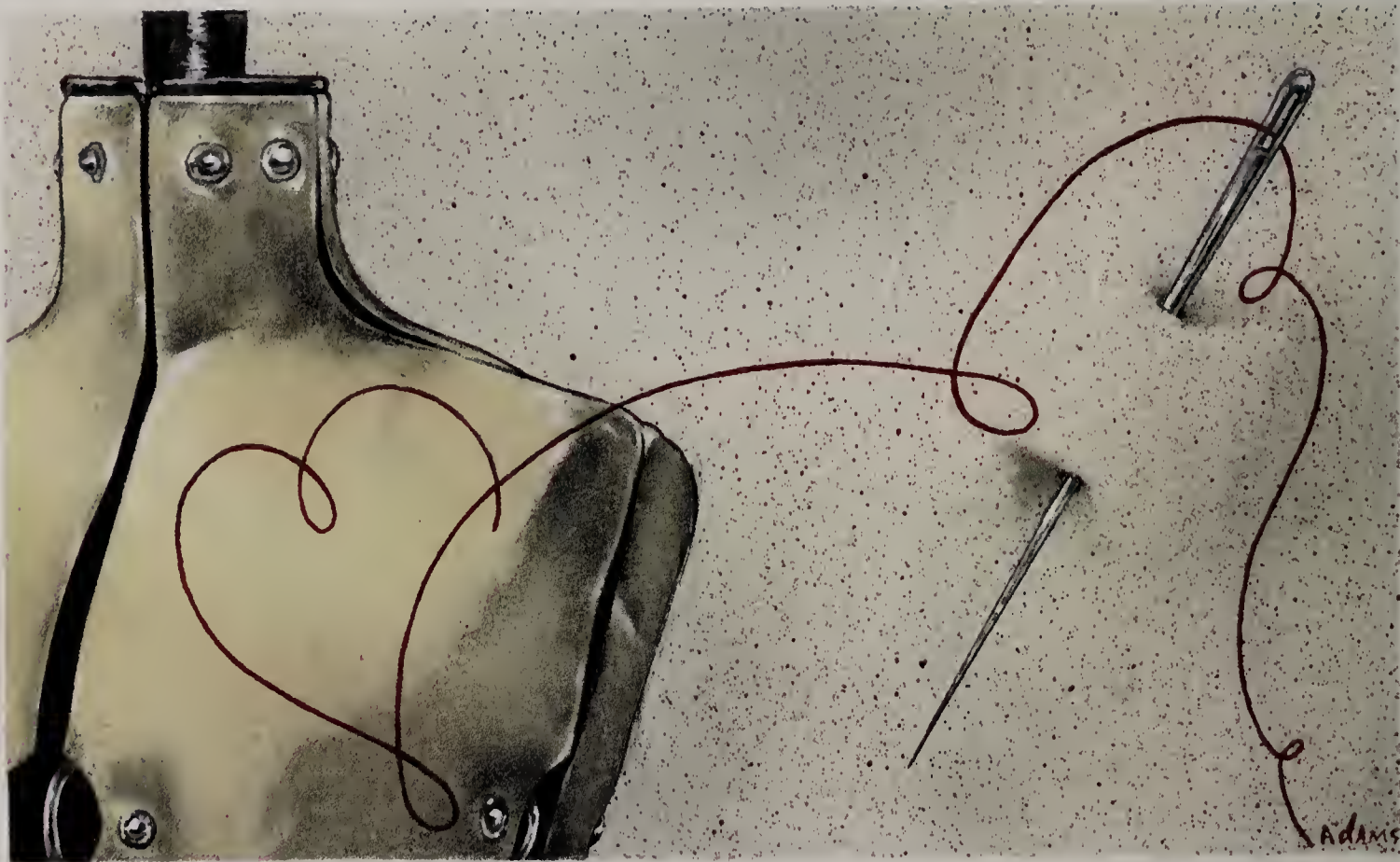
Unifying business communications
for the new way to work.

unify.com

UNIFY Harmonize
your enterprise

Formerly Siemens Enterprise Communications

Copyright © Unify GmbH & Co. KG 2013



Custom-Fit Rewards

IT helps next-generation customer loyalty programs make emotional connections that pay off **BY STEPHANIE OVERBY**

When The North Face launched its loyalty program online last year and in retail stores last April, the company wanted to do more than reward customers for what they buy. It wanted to reward them for what they do.

Sure, members of VIPeak, which is based on the Tibco Loyalty Lab platform, can accrue points for purchasing a fleece jacket or some sneakers. But they can also rack up points by running in the San Francisco Endurance Challenge or talking up the brand on social media. They can then redeem points for offers such as meet-and-greets with sponsored athletes or adventure travel. "[People] don't just want to buy stuff. They want to buy experiences," says Aaron Carpenter, vice president of global marketing at The North Face. "It's a huge opportunity for deep engagement."

Red Robin Gourmet Burgers takes another approach to a richer loyalty program: The restaurant chain tailors its offers not only to certain segments of its customer base, but also to individual customers. "We're saying we think you're special and we want to give you an experience ▶▶

.....**73%** C-suite executives who say they search to see what their CEO is saying on internal and external social media. Weber Shandwick

crunch

Automakers **Rising** as Innovators

Apple, Samsung and Google topped an annual list of most innovative companies, but automakers also ranked high due to advances in fuel efficiency, safety and consumer electronics

COMPANY RANKING (Change from 2012*)

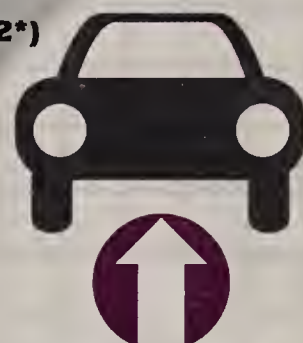
#5 Toyota ↑ 6

#8 Ford ↑ 4

#9 BMW ↑ 5

#13 General Motors ↑ 16

* Places moved up or down in the ranking



SOURCE: "THE MOST INNOVATIVE COMPANIES IN 2013," BOSTON CONSULTING GROUP

that's differentiated," says CIO Chris Laping.

Companies are leapfrogging traditional loyalty programs based on purchase frequency to create experiential programs that make an emotional connection with customers. "These emotional connections become the differentiator," says Darren Tristano, executive vice president at food industry consultancy Technomic.

To get there, old and new IT must be integrated. The Red Robin Royalty program connects to a point-of-sale system and pulls in data from social media and an online customer satisfaction survey. "You have to connect all that stuff—not just what guests did, but how they felt about it," Laping says. "But it takes nitty-gritty, gory integration and nasty, dense data analysis." At The North Face, which built its loyalty system atop legacy CRM and email database programs, trying to match the old segmentation tools with the new system was a challenge.

IT issues, however, are trumped by operational ones. "Doing the regression analysis that tells you whether or not something will be interesting to a guest isn't rocket science," says Laping. "But coupling that with clean execution is tough." Restaurant servers, for example, are trained on the loyalty system, but may get thrown by a promotion unique to one customer.

These next-generation loyalty programs deliver results. VIPeak members visit The North Face stores and website twice as often as non-members, spending 20 percent more per transaction. And Carpenter's marketing team gets richer information to back marketing campaigns. For example, the company used member data to predict the best timing and audience for the introduction this year of Thermoball, its new synthetic down material designed to keep wearers warm even when wet.

Red Robin Royalty customers are more profitable than the chain's typical patron, Laping says, although he won't say how much more. "Our competitors spend ten times more on TV ads, so we have to be scrappy," he says. "This helps us be scrappy."

Stephanie Overby is a freelance writer based in Massachusetts.

"[People] don't just want to buy stuff. They want to buy experiences."

—Aaron Carpenter,
VP of Global Marketing,
The North Face

Monsanto Bets Big on Data Science

Agribusiness giant Monsanto is paying \$930 million to acquire The Climate Corporation, a maker of software that crunches weather-related data to help farmers more effectively grow crops and manage risk.

Founded in 2006, The Climate Corporation has built a big-data analytics system that pulls together "hyper-local weather monitoring, agronomic data modeling, and high-resolution weather simulations," according to a statement.

One goal is to give farm operators the information they need to choose the right insurance coverage to protect their profits against the advent of bad weather. The Climate Corporation itself offers specialized insurance policies.

Data science could be a \$20 billion market "beyond Monsanto's core focus today," the company says.

Rival seed producer DuPont Pioneer is also offering specialized data-analysis software for farmers. Its Pioneer Field360 subscription service combines weather data with interactive field maps and predictive analytics.

—Chris Kanaracus

11

.....**26%** Companies reporting that they do not have an employee dedicated to analyzing their Web analytics data. Econsultancy



grow

12

Randy Bean is co-founder and managing partner of NewVantage Partners, advisers to Fortune 1000 corporations on data and analytics strategies.



THIS ISN'T ABOUT BUYING ALL NEW TOYS

IT'S ABOUT PLAYING BETTER WITH THE ONES YOU HAVE

Modernization can mean many things to many people. But, around here, it doesn't always mean a huge investment in new technology. Instead, our technology-agnostic, customer-centric approach looks at what you have in a different way. Ensuring that everything that is in place is helping you flex your business for growth. Get help changing the game with the toys you already own. Visit NTTDATA.com/flex

THINK SMART. ACT FAST. FLEX YOUR BUSINESS.

NTT DATA
Global IT Innovator

Innovation Requires Taking Risks

TradeMonster develops an innovative mobile trading app that replicates its Web-based platform **BY LAUREN BROUSELL**

HTML5 Known for do-it-yourself stock and options trading, online brokerage TradeMonster didn't have an easy way for traders to do it themselves on mobile devices.

Until this year, TradeMonster had a clunky mobile platform that didn't work on tablets, says CTO Sanjib Sahoo. "A lot of customers said they weren't opening accounts with us because of that," he says.

Sahoo nixed the idea of developing native mobile apps for each type of device because that would have produced high costs and maintenance issues. So TradeMonster took a different, admittedly risky route that used HTML5. Sahoo says he thought it could fit their long-term mobile strategy if they developed a "hybrid HTML5 app," which wraps the HTML5 Web application in a thin layer of code that provides access to

a device's native features but also sends HTML5 code back to the Web server. "We wanted to create a Web-like user experience, and the only technology that is even close to that is HTML5," he says.

But developing in HTML5 wasn't easy. Sahoo and his team wrote a custom framework because, unlike native applications, HTML5 does not have a standard development kit.

"[HTML5] is supposedly this universal write-once, run-anywhere application," says analyst Jack Gold, principal at J. Gold Associates. "The problem is that it's not unique to individual devices. You will have to customize code because it has to run in each platform."

The free app was released in February for smartphones and tablets, and an enhanced iPad-specific version (which simulates four desktop

screens) was released in June. The app, which has been downloaded 28,000 times, allows users to monitor stock prices and account balances, generate quotes and complete transactions—all in real time.

Gold doesn't foresee huge growth in trading via mobile devices but says offering a mobile app is a good way to stay relevant with customers. "Giving someone an app won't turn them from three trades per month to 10," he says. "But they expect to have it."

Sahoo says he's happy they took the risk on HTML5. "My initial reaction was that it may not work," he says. "But it was disruptive [innovation], and I knew we had the business case for it."

Contact Staff Writer Lauren Brousell at lbrousell@cio.com. Follow her on Twitter: [@lbrousell](https://twitter.com/lbrousell).

YouTube Viewers Go Mobile

VIDEO YouTube's presence on smartphones and tablets has exploded in the past couple years. In 2011, just 6 percent of traffic for the Google-owned video service came from mobile devices, but that figure is now 41 percent, CEO Larry Page said on Google's quarterly earnings call in October.

Google and other online firms are all trying to boost the advertising dollars they get from mobile devices as PC sales decline and people spend more time looking at smaller screens.

But it's not all roses for Google when it comes to mobile. The company reported more anemic results from its Motorola handset business, which makes products like the Moto X smartphone. The unit's sales for the quarter dropped by a third to \$1.18 billion.

—Zach Miners

LinkedIn Targets Busy Recruiters

HIRING Hiring managers sometimes have to close a deal from their mobile phones, which is apparently what led LinkedIn to offer a mobile app for recruiters on the go.

The social network launched LinkedIn Recruiter, a mobile version of many of the recruiter tools the company offers on the desktop. With the app, recruiters can track updates on job openings to see who has applied for certain positions, attach hiring manager reviews to candidate profiles and place prospective hires into organizational folders.

Like the desktop site, the app also includes direct messaging so hiring managers can, say, call a candidate to set up an interview.

The app is free for people who already have a Recruiter account. It's available for the iPhone in Apple's App Store, and a mobile Web version is available at www.linkedin.com/recruiter.

—Zach Miners



THE VOLUME OF BUSINESS DATA WORLDWIDE IS EXPECTED TO DOUBLE EVERY 1.2 YEARS.

Be ready with the storage
that's ready for the future.

The world of data is getting bigger by the day. That's why for 25 years, SanDisk has pushed the boundaries of what's possible in storage. The result is more than leading-edge storage. It's peace of mind, even in the most challenging environments. sandisk.com

From Crunch to Hunch

CIOs must teach data scientists to solve real business problems, not just play with data **BY MARY K. PRATT**

As more organizations hire data scientists—especially for predictive analytics projects—IT leaders are discovering that managing people who can turn data into ideas for business actions takes a deft touch. The sharp analytical skills key to the role can sometimes get in the way of answering big-picture corporate questions.

“I’m coaching them to make sure they’re aligned with the company, but I’m not prescribing methodology,” says Anne Robinson, director of supply chain strategy and analytics at Verizon Wireless. “Because if you want a high return on your analytical investment, allow them the freedom to explore.”

Robinson, who is also president of the Institute for Operations Research and the Management Sciences, a professional association, says good teams incorporate a mix of academic skills and applied experiences. Personal characteristics, such as the ability to make connections and ▶▶



Anne Robinson, director of supply chain strategy and analytics at Verizon Wireless, says teams of data scientists should mix academic and real-world experience.

The interoperability to make decisions with complete data



We offer a platform for Strategic Interoperability.

Our technology is essential if you want to make breakthroughs in strategic initiatives such as coordinating care, managing population health, and engaging with patient and physician communities.

Add our HealthShare platform to your EMRs.

InterSystems HealthShare® will give you the ability to link all your people, processes, and systems – *and* to aggregate, analyze, and share all patient data. With HealthShare, your clinicians and administrators will be able to make decisions based on complete records and insight from real-time analytics.

INTERSYSTEMS®

InterSystems.com/Ability4F

►► **Data scientists** Continued from Page 16

express ideas well, are important in the corporate setting, managers say.

And it's increasingly important for CIOs to be able manage analytics teams well—an Accenture study last year found that analytics is “moving from a secondary role in business to the core of many key decisions and processes.” For example, analytics may be used to predict customer behavior or prescribe changes that make the supply chain more efficient.

Working in the Real World

Managers should guide their data scientists to interpret data, not just crunch it, says Betsy Page Sigman, a professor at Georgetown University. “Some data scientists are so fascinated by data they lose the forest for the trees,” she says. Focus them on bigger corporate goals so they can make predictions in a business context.

Andrew Jennings, chief analytics officer at FICO, a \$676 million financial services and credit score company, says statistical skills are hardly enough. He wants people who can both program and see how analytics can be used to shape business strategy. “It's absolutely critical to understand the problem you're trying to solve,” he says.

For example, if his team is working on a predictive analytics problem such as improving fraud detection at the point of sale, it needs to analyze the data and factor in real-world business conditions, such as the need for speed and no false positives in the final product.

Finding all those skills in one person is tough, so Jennings looks at the team as a whole. Team members fill roles that use their strengths: a data scientist with communication skills, for instance, will work with business folks.

Other traits are also important. Lon O'Donnell, manager of professional services at International Game Technology, tries to foster inquisitiveness in the data scientists at the \$2.2 billion gaming systems company.

“I need someone who makes sense of the data instead of just aggregating it,” O'Donnell says. He wants people willing to learn the gaming industry.

In turn, to keep high-performers happy, he stockpiles less urgent projects to provide challenges during slow work times. “You have to always engage their minds,” O'Donnell says.

Mary K. Pratt is a freelance writer based in Massachusetts.

iPad Pilot Programs' Dirty Little Secrets

BY TOM KANESHIGE

At a September event on mobility, Aaron Freimark, CTO of Apple consultancy Tekserve, asked the crowd: “How many of you have been in an iPad pilot for over two years?” A few brave souls sheepishly raised their hands, while the rest of the attendees broke out in nervous laughter. It seemed as if everyone was caught in the same lie. Truth is, many IT pros are faced with stalled iPad pilot projects. “It's the dirty little secret of iPads,” Freimark says.

Apple has helped businesses by, for example, making bulk purchases easier and adding enterprise-class features to iOS 7. Nevertheless, thousands of iPads are stuck in limbo. A Minnesota retailer has had 1,500 iPads stashed in a warehouse for years, Freimark says. “This is a little scary, right?” he says. “That's a lot of cash going down the drain.”

Why Pilots Go Off Course: The iPad pilot problem is tricky to solve because there are so many ways pilots can get bogged down. Pilots can be derailed when IT isn't involved enough or when IT is too involved. Pilots can get stuck when strategic scalability considerations aren't thought out or tactical iPad training gets short shrift.

One retailer wanted to give iPads to its district sales managers. The sales group hired Tekserve to deploy iPads under the condition that Tekserve not involve the IT department; IT had a reputation for throwing up roadblocks to tech adoption. Upon receiving their new iPads, the district managers all logged on at the same time—and down went the Lotus Notes server.

Suffice it to say, IT was not happy. When IT comes on board late to an iPad pilot or rogue rollout, it often hits the brakes as it sorts out issues like security. The result: iPad pilots can creep along slowly when IT is too involved.

Even iPad Users Need Training: The thinking goes that everyone is supposed to know how to use the iPad straight out of the box, but that's not true. The special problem with the iPad is that those who don't know won't ask out of fear they'll look silly. This can result in a couple of bad behaviors: Employees will avoid using the iPad, which leads to a pilot project that doesn't show enough returns to justify a large-scale rollout, or employees will try to find answers on their own.

“If you don't provide training to users, you're basically outsourcing your help desk to Google,” Freimark says. “Either they won't use it or they'll try to Google answers—and there's a lot of bad information on Google.”

Tom Kaneshige is a senior writer for CIO.com.

5X

**FASTER
DEPLOYMENT**

96%

LESS DOWNTIME

1/2

THE COST

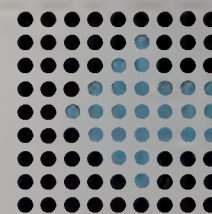
THE NUMBERS ADD UP. VCE VBLOCK™ SYSTEMS.

Focus on business, not infrastructure. Vblock Systems are built on the Cisco Unified Computing System with Intel® Xeon® processors, storage from EMC and virtualization from VMware. The results speak for themselves – more productivity with less cost.

Learn more at www.vce.com/roi



© 2013 VCE Company LLC. All Rights Reserved. Vblock and the VCE logo are trademarks or registered trademarks of VCE Company, LLC and/or its affiliates in the United States and other countries. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries. All other trademarks used herein are the property of their respective owners. Numbers based on IDC Whitepaper: "Convergence with Vblock Systems: a Value Measurement" September 2013. Specifications may vary according to customer's requirements. All information is provided 'as is' and all warranties are disclaimed.



The Newcomer

Lenovo is trying to crack the enterprise server market, now dominated by IBM, HP and Dell **BY AGAM SHAH**

THE PITCH

Lenovo, known for laptops like the ThinkPad line, is expanding into the enterprise through server and storage products. Lenovo's first servers shipped in 2008 for small and midsize businesses, and an Enterprise Products Group was formed this year to attract larger customers.

Lenovo's enterprise path is similar to that of Dell, whose partnership with storage vendor EMC was key to expanding its enterprise offerings. Lenovo and EMC established a storage joint venture called LenovoEMC last year. Meanwhile, Lenovo's servers are being used for cloud deployments and database applications. The servers are available as bare-bones systems or can be customized with virtualization tools and management software.

Lenovo is targeting companies that don't want to get stuck in a "particular vendor's solution stack," says Darrel Ward, vice president of product marketing at the company's Enterprise Product Group.

THE CATCH

Lenovo has a strong track record in the PC arena, but it's a new entrant in the server market, so customers have to be cautious, says Charles King, principal analyst at Pund-IT.

"No matter how well a company has done in one sector, there's no guarantee they will be an effective player in another segment. It's important for customers to approach the company with questions," King says.

Lenovo also needs to fill some product holes to meet the top-to-bottom requirements of data-center customers, says Patrick Moorhead, principal analyst at Moor Insights and Strategy.

"Lenovo doesn't offer blade servers, networking, converged infrastructure—and they go through EMC for storage," Moorhead says. "Lenovo

would need to add every one of these capabilities to be comparable to the big three," meaning IBM, Hewlett-Packard and Dell.

THE SCORE

Lenovo's servers are reasonably priced, and provide users with hardware and software flexibility. That met the purchase criteria of the owner of a law firm, who now has multiple Lenovo servers running database, email and back-office applications.

"I was looking for a server that was a blank slate and didn't have an operating system or other applications preloaded," says the user, who asked to remain anonymous. "At the same time, [Lenovo] still made available the drivers for new as well as older operating systems."

Large and small businesses alike

THE COMPANY

Lenovo Group Ltd.

Headquarters: Beijing

Employees: 33,000

2013 Revenue: \$33.87 billion

CEO: Yang Yuanqing

What They Do: Lenovo, which acquired IBM's PC division in 2005, claims to be the world's largest PC vendor. It also makes smartphones, tablets and TVs. Now Lenovo is expanding into the corporate IT market with server and storage products.

are increasingly buying bare-bones servers for in-house customization. Web giants such as Facebook and Google design their own servers, which they purchase from third-party manufacturers.

Lenovo's enterprise unit has a small-business mind-set, and it will bend more toward customer needs than larger competitors will, says Ezra Gottheil, principal analyst at Technology Business Research. The ThinkPad's solid reputation among IT managers also adds luster.

"ThinkPad customers are potential Lenovo server customers; they already know the company and do business with it," Gottheil says.

Lenovo's strong supply chain in its China home base gives it an advantage over U.S.-based competitors. But whether the company is able to translate its PC success into enterprise products remains to be seen.

Agam Shah is a U.S. correspondent for the IDG News Service.

**THE
FUTURE
STATE**  **cio**®



Has Your CIO Journey Reached Its Ultimate Destination?

Don't sit back and let the future happen to you; be part of determining and defining your destination. Join with your fellow business IT leaders in the CIO Executive Council as we:

- » Define the future of the CIO position
- » Bring more value to the enterprise
- » Influence CEO expectations
- » Develop team business sensibility
- » Cultivate an external business focus
- » Prepare for leadership beyond IT

Get your
Future-State CIO®
Poster

Council.cio.com/estore

The Future-State CIO®: Know Your Next Move

Visit: <http://council.cio.com/programs/the-future-state-cio-journey/>

Call: +1 508.766.5696

Email: cec_info@cio.com

Powered by



CIO Executive Council
Leaders Shaping the Future of Business



22

THE POLITICS OF NO

CIOs may have good reason to reject a proposal or nix a technology request, but an inept or frequent 'no' will get you sidelined

BY KIM S. NASH

Saying no—the right way—may be the most powerful skill a CIO can learn. A smart “no” can set boundaries and enhance your leadership position. A stupid “no” can diminish your authority and make enemies.

How a CIO gets to no depends on the context, of course. Telling the CEO he can't connect his iPad to the corporate network is different from letting down an employee keen to be promoted.

Despite the old saw that IT has to stop being the Department of No, reasons to say no abound: a strict bring-your-own-device policy means some devices won't be supported. A new piece of technology won't conform to internal standards. A proposal makes no sense. A proposal makes sense, but there's already too much work and not enough money. The CEO doesn't like it. A request doesn't support corporate goals. A big idea is too much for a risk-averse culture.

PHOTO BY STAN KAADY



If a proposal to use a certain technology must be rejected, acknowledge that there's value in the concept and offer an alternative, advises **Tom Phillips**, CIO at Elavon, a payment processing company owned by U.S. Bancorp.



Lincoln Trust's CIO **Helen Cousins** says that she and her IT staff must rally behind company decisions (assuming they aren't unethical), even if she privately disagrees.

Few decisions are black-and-white. But now, as the CIO role shifts into new areas such as revenue generation, turf lines are less clear. CIOs don't want to step on toes, but they also have to offer a clear position on strategic issues. "It takes finesse to look like a firm decision maker," says Bill Deam, a former CIO at Quintiles Transnational and ACNielsen. He was a management consultant at the time he was interviewed and is now CTO of Mapi Group. "You have massive amounts of politics."

Rudy Puryear, who leads the global IT consulting practice at Bain and Co., knows of a financial services company where the CIO was asked to leave after three years of consistent negative responses. "Too many decisions came back with a 'no' from IT, without well-thought-out reasons," Puryear says. "Hard feelings and disappointment led the business community to press the CEO for a change in leadership in IT, and it was too much of a groundswell to ignore."

An artful "no" is plainly difficult to master. Cleaning up after

a predecessor's bad attempts is especially difficult. But veteran CIOs find that by using tools such as skillful conversation, deep governance and sense-and-respond intelligence, denial doesn't have to kill a career.

WHEN 'NO' HURTS

Declining what seems to be a quick, simple technology request, such as to build a new analytics tool for the marketing staff, may not be the power play others suspect. CIOs know that new technology carries a 10-year ripple effect of maintenance and improvement costs. It's a CIO's job, Puryear says, to explain that. CIOs have long struggled to avoid infamy for leading an IT group that too often comes up with reasons to not do something. A reputation for denying requests and dismissing ideas isolates you and your staff from peers and can take you out of key strategy discussions. Shadow IT, we

know, is a response to disliking the CIO's answers.

But even worse is when IT is seen as an obstacle to growth, says Tom Phillips, CIO at Elavon, a payment processing company owned by the \$20.3 billion U.S. Bancorp.

IT may point to sound reasons for delaying or declining, say, a marketing or sales project. Perhaps staff and money are assigned elsewhere. But that doesn't mean marketing or sales will take it well. "When we say no, it can either directly—or in the eyes of business executives—mean we are inhibiting business performance," Phillips says. "It becomes quite an emotive topic."

CIOs get a lot of heat, but it helps to remain open-minded, he says. If a proposal to use a certain technology must be rejected, acknowledge that there's value in the concept and offer an alternative, he advises. "It's your responsibility to listen to new ideas, even if you do have to say no."

Finding oneself frequently declining requests signals a misalignment between IT and business, according to Deam. A CIO with an effective intelligence operation should pick up on budding frustrations outside IT. Key to good intelligence gathering are business analysts embedded in functional departments, such as finance and human resources, as well as in business units. These IT staff members should know exactly how the company makes money and be able to offer suggestions for streamlining the flow of vital work, he says.

Fix those trouble spots, and rarely will you need to issue a big, fat, political "no," Deam says. "There's no way you should have someone running in with a sudden \$30 million request."

WHO'S THE DECIDER?

Many CIOs are stretching into untraditional areas, including creating new information-based products and services. As lines blur between functional domains, just who has authority over which decisions gets murky. When IT tries to go too far in defining business needs, or business goes too far into making a technology call, problems arise.

A key exercise for the C-suite is to identify the 10 most important decisions the company will make this year and name who will make each call, Puryear says. Many people may influence the discussion, but where does the buck stop? Delineating those responsibilities and rights leads to more effective decision makers. The company can move faster because people accept the outcome and move on, he says.

Helen Cousins, Lincoln Trust's CIO and a member of its board of directors, advocates a strong hierarchy. If, after being fully informed of the facts and risks in a given situation, the CEO or peer makes a choice that Cousins disagrees with, she goes with it. "It's my responsibility to support the decision 100 percent, and to get my staff to support it. I can't show to the out-

DELIVERING BAD NEWS

Learn how to say no to your staff members—and fire the incompetents without delay

SAYING NO TO YOUR STAFF produces a ripple effect much different from that of saying no to peers. A CIO must avoid demoralizing a staff member who won't receive a desired promotion or can't be given a raise.

In such serious conversations, CIOs should be authentic about the reasons for the decision, says Jackie Sloane, an executive coach at Sloane Communications. Reveal what you can about the tight budget that doesn't allow for a raise, Sloane says.

If someone isn't ready for a promotion, use the meeting to outline clearly the actions he can take to earn one, she says, and in what time frame. The idea is to say no, but offer suggestions or options. "When you lay down the line with people, it can be amazing what you see," she says.

Especially with staff issues, avoiding the "no" just brings trouble, says Becky Blalock, former CIO of Southern Co., and author of *Dare: Straight Talk on Confidence, Courage and Career for Women in Charge*, in which she tells the stories of 28 women in C-level positions. A common mistake they cited was not firing someone soon enough, she says.

These managers knew the person wasn't performing and had tried to bring him up to speed, but could see it wasn't working, she says.

"If he's not competent, he drags the team down." Still, the managers were reluctant to deliver the ultimate bad news. Looking back, Blalock sees that she also made the same mistake during her career as a CIO. "It's very difficult to say, 'No, you're not doing the job,'" she says, "but those things are easier to see in hindsight." —K.S.N.

side world I don't agree," she says. As long as they're not unethical, she says, "you rally behind decisions made in a company."

For several years, Lincoln Trust sanctioned only BlackBerry devices on the corporate network. But when the CEO and head of marketing and sales wanted to use their iPhones for work, Cousins made it happen. "Now BlackBerry has lost tons of business and iPhones and iPads are the thing," she says. If IT had not figured out how to make Apple devices safe for corporate use back when iPhones were the exception, she says, "we'd be behind the curve now."

Ever logical, CIOs will often insist that if they provide a colleague with all the right facts, he will come to the same conclusion they did. Dispassionate analysis will win the day. Well, not always. It's then you need to understand the nuances of the situation, says Becky Blalock, who spent nine years as CIO of Southern Co., a \$16.5 billion utility, before her retirement in 2011. Perhaps there's history or personal bias in play. Or maybe it's plain old whim.

Discuss controversial topics in person, not over email, says Blalock, who is now managing partner at Advisory Capital, a consulting company. People are more rational when they sit down together. "With some executives I've seen, [decisions] are about control and their being right," she says. "Make it so someone's not losing face when you say no."

CIOs sometimes have to do unpopular things, such as shutting down technology that doesn't meet corporate standards, denying requests for upgrades or ending a perk where the company pays for home computers. One of the most memorable for Blalock was having to strengthen password criteria. Many workers complained. "Whoo-ee! Those things do not make employees happy."

USE THE FORCE

CIOs need to do a good bit of foundational work with peers to form trust and build personal and professional credibility for the inevitable day when "no" must be the answer. So when presented with requests along the way, you don't want to turn them all into simplistic yes-or-no transactions, says Jackie Sloane, an executive coach at Sloane Communications. Rather, use these opportunities to have a conversation about priorities and goals.

Perhaps the request is too costly or doesn't support the company's established goals. Don't answer right away, Sloane advises, but ask your own questions to learn why the request emerged. What's the real problem? Why does the person think IT can help? What are the alternatives? In other words, talk about it. Then, she says, position your response the same way a marketer positions a consumer product. "You say, 'Based on what I know matters to you, my suggestion is this is not something you want to do,'" she advises. "People love it when you know what matters to them."

When iPhones first came out, many employees at Southern Co. wanted to use them for work. At the time, Southern paid for employee phones, but iPhones were not on the list of

authorized devices, Blalock says. The IT group had to decline these requests. But Blalock cautioned her team to use a positive approach. "We used 'Help me understand' rather than 'No, you can't do this.'"

In such conversations, CIOs will also reveal information about themselves: their style, thought process and leadership philosophy. By doing this over time, Sloane says, CIOs can build a personal force field so others understand their expertise and value their decisions. New CIOs, in particular, tend to want to approve or decline a request immediately, even when there's no need to do that, she says. "Successful people make a lot of requests, so you need to make a lot of requests, too." Being reactionary, she says, "is a legacy from a lower-level role."

A defining moment for Blalock in building her own force field occurred some years ago. She faced what she calls a "corporate bully" situation that she took up the disciplinary chain. She declines to reveal details but says the incident, while painful, reinforced her belief that you must teach people how to treat you. "They won't mess with you if they know you have your facts straight and you have the company's best interest at heart," she says. "You need to correct people who don't know those two things."

GOVERNANCE MACHINE

While trying to eliminate a negative atmosphere, CIOs can build the foundation for a positive one, where significant decisions travel through a strong, clear governance process. As CIO of Amgen, Diana McKenzie knew she wanted to tackle demand governance. She wanted to elevate IT decisions from a project-by-project basis, where there are too many opportunities for conflict, and instead encourage discussions of a portfolio of work related to specific corporate goals. But to get there, she realized, IT had to understand much more about operations at the \$16.6 billion biotechnology company.

In 2012, she started a mapping project, asking business executives to show IT's business analysts on a map how their unit or department works. They then rated, on a maturity scale of one to five, the strategic importance of each unit's key capabilities and how each one was functioning. This gave IT a working knowledge of each area, provided and endorsed by business peers.

Making the maps took a year, but now interactions concerning technology requests have matured from yes-or-no replies to conversations about where the request fits on the map and how important it is to the company as a whole.

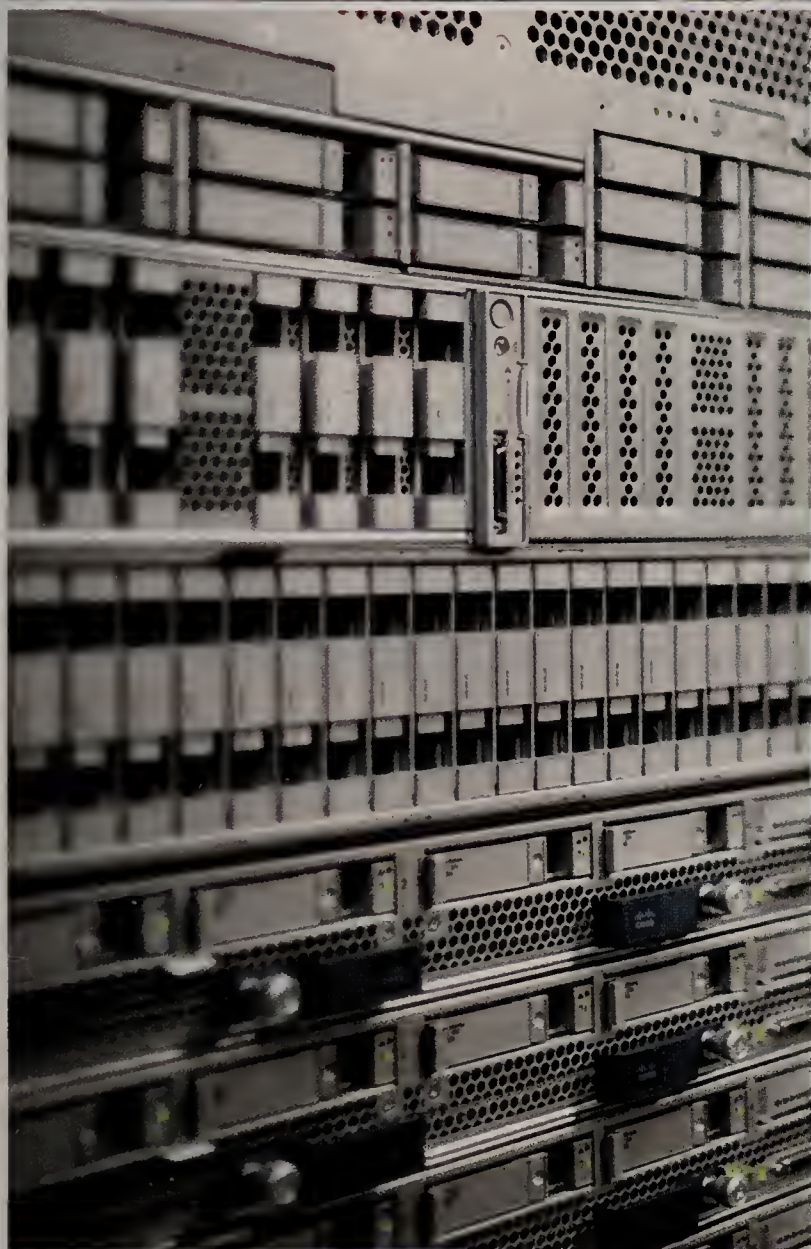
In September, the maps, which were once viewed as an IT tool exclusively, were used in a workshop by the CEO, CFO, business unit leaders and other top executives to define Amgen's long-range improvement initiatives, she says. Such clear governance means she

"People will wonder who you really are if you're always saying yes to everything."

—Jackie Sloane, Executive Coach,
Sloane Communications

Business
Operations
Per Second:
Unparalleled
Cisco Server
Performance!

1,584,567



1

Cisco Unified
Computing
System



Industry-Leading
Database Performance
34% Faster²



Outperforms RISC by
57%
On Java Applications³

Unparalleled Application Performance
with Cisco Servers.

Find out more at cisco.com/servers



With
Intel® Xeon®
processors



TOMORROW
starts here.

For more performance information, visit cisco.com/go/ucsbenchmarks.

1. Based on SPECjbb2005 benchmark on Cisco UCS C220 M3 server at 1,584,567 BOPS, 792,284 BOPS/JVM. 2. Based on TPC Benchmark C Results on 2 Processor Systems. Cisco UCS C240 M3 High-Density Rack Server with Oracle Database 11g Release 2 Standard Edition One, 1,609,186.39 tpmC, \$0.47/tpmC, available 9/27/12 compared to IBM Power 780 Server Model 9179-MHB with IBM DB2 9.5, 1,200,011.00 tpmC, \$0.69/tpmC, available 10/13/10. 3. Based on SPECjEnterprise2010 benchmark with 8 total Java EE Server processors on Cisco UCS B440 M2 servers at 26,118.67 E/Ops compared to RISC-based IBM Power 780 at 16,646.34 E/Ops. SPEC®, SPECjbb®, and SPECjEnterprise® are registered trademarks of Standard Performance Evaluation Corporation. TPC Benchmark C® is a trademark of the Transaction Processing Council (TPC). The performance results described here are derived from detailed benchmark results available at <http://www.spec.org> and <http://www.tpc.org> as of 1-15-2013. ©2013 Cisco and/or its affiliates. All rights reserved. All third-party products belong to the companies that own them. Cisco, the Cisco logo, and Cisco UCS are trademarks or registered trademarks of Cisco. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries. All other trademarks are the property of their respective owners.

doesn't worry about saying yes or no anymore. "If a project comes forward from a business partner, we can then ask where it fits on the map."

The two years of effort have changed the dialogue for the better, she says. In 2013, for example, one strategic corporate goal was to improve quality and operational efficiency, and IT finished a complex big-data project to detect early signs of manufacturing irregularities. In 2012, one business goal was to expand in emerging markets, which for IT meant supply-chain work and provisioning offices in China.

Using the machinery of governance helps a CIO skirt denials, refusals and other unpleasanties, says Deam, the consultant. He recalls a time at a previous employer when one group asked IT for an expensive new system to house a complex project bidding system. The existing set of spreadsheets had become slow and sometimes unresponsive. "It was a beast. Un-emailable," he says. "People would cut it down in pieces to email and try to bolt it back together again."

Rather than throw more technology at the problem, Deam urged the group find a way to simplify the process and the resulting data behind the bidding system. The group resisted. "We took it to the governance committee. They said, 'Bill suggested you cut it in half. Why not do that?'"

The essence of the reply from the executive in question was that no one in his group could agree how to do it, he says. To which the committee responded that he was in charge of those very people and should, therefore, take charge of the situation.

"We could have done the solution they were asking for," Deam says, "but simplicity is what they actually sought." The magic in good governance is forcing people to make decisions where accountability lies.

To help eliminate the politics that can gum up any governing body, the company would rotate senior executives in and out of committee meetings so it was rare that anyone would be arguing the case for a proposal for their own domain, Deam says. A member attending a given meeting would advocate for whichever idea looked best, regardless of where it originated. The committee published a map each month showing why it picked the one or two projects it did. "The CIO is no longer having to explain him- or herself; the organization has made the choice," he says. "If you want to change what comes out of the hopper, make a better case."

WHEN 'NO' PAYS OFF

It's important for CIOs to teach staff how to say no so that all the good work done at the top isn't negated by unfortunate exchanges below. McKenzie, for example, wants her staff to understand the reasoning behind major decisions—as well as the business background and value of the request.

"If you don't understand the business well enough, you

"It's your responsibility to listen to new ideas, even if you do have to say no."

—Tom Phillips, CIO, Elavon

might answer the question wrong," she explains. Whatever happens, she says, "Don't leave the impression that IT isn't going to do something because it's hard."

Bill McCorey, CIO of Universal Parks and Resorts, says he wouldn't be where he is today without a well-contemplated "no," the effects of which reverberated for several years. In 2005, as CIO of now-defunct Circuit City, McCorey put out an RFP for enterprise storage systems. EMC had won the last couple of bids, but McCorey knew he wanted to diversify vendors to keep a competitive landscape. He asked to meet with EMC's area manager.

"I brought him in and explained the situation, straight up so not to waste his time or set expectations that could not be met. He was disappointed but understood," he recalls.

Five years later, when McCorey was at IBM, he got a call from the EMC manager, who had recommended him for the newly available CIO role at Universal. Although the two hadn't spoken for a few years, McCorey says his former vendor referred him because of the way he had told him he would lose the bid: direct, honest and with facts. "This reminds me of how our reputation is built based on all of our actions," McCorey says.

Sloane, the executive coach, agrees. "Having the courage to say no is important," she says. "People will wonder who you really are if you're always saying yes to everything." **CIO**

Contact Managing Editor Kim S. Nash at knash@cio.com. Follow her on Twitter: @knash99.



The elephant has left the room.

Some dashboard solutions can be a huge drain on your IT team. iDashboards is different. There's no complicated installation processes. No integration nightmares. No need for a team of data analysts. Just easy-to-use tools that allow anyone – from human resources to the c-suite – to build intuitive, custom dashboards that turn mountains of data into better decisions.



 **Dashboards**
Powerful Insights

Check out a demo or start your free trial at iDashboards.com

peer advice from the **cio executive council**

connect

30



SOUNDING BOARD

Peek Into the Future

Want to succeed with predictive analytics? Prepare for a lot of front-end data work and angst about cultural change.

CHRIS COYE, DISNEY ABC TELEVISION GROUP

EXPECT CULTURE SHOCK

We've implemented three predictive analytics tools this year: One analyzes what-if ad sales scenarios, another is a promotional media-optimization tool, and a third will help our executives decide which pilots to pick up. We created a small data analytics team in IT, but the models are built by Disney's revenue sciences group.

The biggest technical challenge was getting the right source data. We have multiple divisions, and that data had to be standardized. We built our own extract, transform and load tool, but we're migrating to a commercial tool to speed the process.

Culturally, these tools have caused a lot of angst. Research doesn't want sales to see its data too early; sales doesn't want finance to see its data too early. Information is now available earlier than people are comfortable with; everyone wants to maintain ►►►



Chris Coye,
SVP & CIO,
Disney ABC
Television Group



James Clent,
CIO, United
Orthopedic Group



Ed Brandman,
CIO, Kohlberg
Kravis Roberts



The **CIO Executive Council** is a global peer advisory service and professional association of more than 500 CIOs, founded by *CIO*'s publisher. To learn more, visit council.cio.com.

PHOTO BY SHUTTERSTOCK

CIO CIO FORUM

on **LinkedIn**

Link to more than **53,000** members of the CIO community.

The CIO Forum is where members of the CIO community can connect and collaborate to move their business technology initiatives and careers forward. If you are a senior IT professional, we'd love to have you join—apply for membership today.

Visit www.cio.com/linkedin



Q: Want to reach 140,000 readers?

A: Place your ad here



The Marketplace section of



For more information contact:

Enku Gubaie

508.766.5487

egubaie@idgenterprise.com



dtSearch[®]

The Smart Choice for Text Retrieval[®] since 1991

Instantly Search Terabytes of Text

25+ fielded and full-text search types

dtSearch's **own document filters** support "Office," PDF, HTML, XML, ZIP, emails (with nested attachments), and many other file types

Supports databases as well as static and dynamic websites

Highlights hits in all of the above

APIs for .NET, Java, C++, SQL, etc.

64-bit and 32-bit; Win and Linux

Ask about fully-functional evaluations

www.dtSearch.com 1-800-IT-FINDS

"lightning fast"
Redmond Magazine

"covers all data sources"
eWeek

"results in less than a second"
InfoWorld

hundreds more reviews
and developer case studies
at www.dtsearch.com

dtSearch products:

Desktop with Spider

Network with Spider

Publish (portable media)

Web with Spider

Engine for Win & .NET

Engine for Linux

Document filters also available
for separate licensing

►►► **Analytics** Continued from Page 30

control over the narrative describing their results.

It's a big change driven by our CFO and CTO, with the expectation that these tools will enable better decisions. Determining whether to sell an ad or use that time slot for a show promo used to be based on gut feel; now the tool predicts what will drive more revenue—selling that ad or getting more viewers to watch tomorrow night's episode of *Revenge*.

JAMES CLENT, UNITED ORTHOPEDIC GROUP

START SMALL AND BUILD ENTHUSIASM

Our market—orthopedic braces—is a limited one, so customer retention is key. Our first attempt at predictive analytics was to identify our silent defectors: customers who don't say they're unhappy but whose orders trickle down or stop altogether. We hypothesized that we could rescue those customers if we could identify them before they left. We built a tool that, based on order patterns, could predict when a customer's next order ought to occur. If that time came and went, a salesperson would give them a call.

We started with a pilot, which reduced silent defections by 50 percent, and used what we learned to deploy the system nationally. During the pilot, we developed customer trend lines that allowed sales staff to see order volumes and deviations in addition to next-order predictions, but it was too complex. It's important to keep it simple, get the organization used to working with predictive analysis, and build enthusiasm over time. The easily overwhelmed will get on board, and the advanced users will ask for more. Then you can have follow-up projects, like the sales budgeting and analysis tool we're building. It becomes more than a fad; it's something that lasts.

ED BRANDMAN, KOHLBERG KRAVIS ROBERTS

IT'S NOT ABOUT THE TECHNOLOGY

Predictive analytics is one more tool that helps us in our rigorous process for making private equity investment decisions and evaluating the performance of companies we own. We spent a lot of time figuring out how to collect all the data we need. We get financial and operational data every month from our 80 portfolio companies, each of which captures its data a bit differently. It's a massive amount of information that can provide a lot of predictive insight ahead of what is publicly available—if you can normalize it. After two years, we have some pretty solid data. It took a lot of legwork, and we're still constantly tweaking it.

We overlay that with publicly available trend data from third parties like Standard and Poor's or BCA Research. We can look across our companies to understand which debt is fixed versus floating rate and, based on larger interest rate trends, find the most opportune moments for financing, for example. Our portfolio management committee can determine whether to be more or less aggressive about expanding a business or managing costs.

We've developed the tools ourselves. We're not looking at massive time series data that would take us down a Hadoop path. Too many companies get caught up in all this new technology, but it's not about the technology. More data—and more frequent data—is not always better. It's about getting the right data at the right time. Unless you can turn that data into an actionable event, it's a waste of time and money.

TAKE Note

CIOs Reinvent and Innovate

REGISTER CIOs who need to meet evolving business expectations can gain insights and ideas at the Premier 100 IT Leadership Conference on March 2-4, 2014 in Tucson, Ariz. A keynote speaker will assign specific reinvention challenges to be solved using gamification techniques, producing dozens of practical action items. In addition, select members of the CIO Executive Council and their CEOs will showcase models for innovation and transformation, and discuss real-world challenges and results. council.cio.com/premier100

Does IT Have Business Skills?

STREAM Does your IT leadership team offer the mix of executive skills, business know-how and customer-centric thinking that your business needs? You can find out in the CIO Executive Council's hands-on Game Changer workshop, taking place in multiple cities in 2014. In addition to learning from the council's leadership team assessment tool, you can hear from your peers about talent management and then work in small groups to identify practical approaches for developing and fielding a winning team of IT leaders. In this video clip, workshop facilitator Janelle Monney, managing partner at The Monney Group, shares stories about how CIOs have benefited from the workshop. council.cio.com/gamechanger

Managing Global Talent

DOWNLOAD Peer-to-peer conversations among CIOs can deliver invaluable and candid insights that elevate the entire IT leadership team. In this recorded webcast, you can hear from Karl Salnoske, EVP of service delivery and CIO at GXS, about his strategy for developing and managing a global IT workforce. Whether you are supporting employees in North America, expanding your markets in Latin America, empowering your sales force in Europe or managing a development team in Asia, having the right IT talent is critical for success. council.cio.com/globaltallent

Want to be in the know about the latest IT topics and trends?

Become a CIO **INSIDER**

You'll gain exclusive access to premium content and resources, including:

- What to buy. In-depth reviews of IT and business solutions
- Executive and Peer Interviews and Insights. Deep dives with the industry's top thinkers
- Practical tips. How-to articles for IT and business professionals
- Exclusive research & analysis. Incisive reports, case studies, and more
- How to get ahead. Career advice from industry experts and peers
- Invitations to select events. Get the inside edge

To register for Insider exclusive content visit:
www.cio.com/insiders/index



CIO

SALES AND SERVICES

EXECUTIVE COMMITTEE

President & CEO

Michael Friedenberg
508-935-4274

Executive Assistant to the President & CEO

Pamela Carlson • 508-935-4274

SVP of Human Resources

Patricia Chisholm
508-935-4734

SVP of Events

Ellen Daly • 508-935-4273

SVP & Chief Content Officer

John Gallant • 508-766-5426

SVP of Digital

Brian Glynn • 508-935-4586

SVP of Strategic Programs & Custom Solutions Group

Charles Lee • 508-935-4796

SVP, Group Publisher & CMO

Bob Melk • 415-975-2685

SVP & General Manager, Online Operations

Gregg Pinsky • 508-271-8013

SVP of DEMO

Neal Silverman • 508-766-5463

SVP & COO

Matthew Smith • 508-820-8102

SVP & General Manager, CIO Executive Council

Pam Stenson • 508-935-4089

SVP of Digital, & Publisher

Sean Weglage • 415-978-3314

SALES

Publisher Emeritus

Gary J. Beach • 508-935-4202

VP & Publisher

Adam Dennison • 508-935-4087

Senior Sales Operations Manager

Christine McKay
508-988-7836

Senior Sales Operations Coordinator

Bethany Whiffin
508-935-4092

Sales Operations Coordinator

Megan Roman • 508-820-8123

EAST COAST

Account Director, Integrated

Ellie St. Louis • 201-634-2332

NEW ENGLAND/CENTRAL

Account Director, Integrated

Brian Keenan • 847-508-8428

Account Coordinator

Stephanie Moran • 508-935-4154

WEST COAST

Regional Sales Director, Integrated

Kevin Ebmeyer • 415-975-2684

Account Coordinator

Stephanie Moran • 508-935-4154

Account Director, Integrated

Al Collins • 415-975-2686

Account Coordinator

Christine Hostetler
415-975-2683

ONLINE SALES

Account Director, Digital, East Coast

Richard Hartman
508-935-4487

Account Directors, Digital, West Coast

Carmen Facas • 415-975-2681

Account Coordinator

Lauren Eckenfelder
415-935-2687

Account Directors, Digital, West Coast

Erika Karr • 415-978-3329

Account Coordinator

Christine Hostetler
415-975-2683

VP of Business Development & Digital Media

Bill Rigby • 508-B20-B111

VP of Digital

Account Services

Danielle Thorne
508-988-7969

Online Account Services Team Lead

Beverly Lloyd • 508-988-6765

PRODUCTION

VP, Production Operations

Chris Cuoco • 508-988-7565

Production Manager

Lisa Stevenson Cobe
508-935-4591

LIST SERVICES

Contact Stephen Tozeski of IDG List Services at 508-766-5633 or stozeski@idglist.com.

CIO is published in the U.S. as well as in:

Argentina, CIO Cono Sur

<http://conosur.cio.com>

Australia, CIO Australia

www.cio.idg.com.au

Brazil, CIO

www.cio.com.br

Bulgaria, CIO Bulgaria

www.cio.bg

Canada, CIO Canada

cio.itworldconodo.com

China, CEOCIO China

www.ceocio.com.cn

Finland, CIO

www.cio.fi

France, CIO France

www.cio-online.com

Germany, CIO IT-

Strategie für Manager

www.cio.de

India, CIO India

www.cio.in

Japan, CIO Magazine Japan

www.ciojp.com

New Zealand, CIO New Zealand

www.cio.co.nz

Norway, CIO Computerworld Forum

www.idg.no/cio

Pakistan, CIO Pakistan

www.ciopakistan.com

Poland, CIO

www.cio.cxo.pl

Portugal, CXO

www.cxo.com.pt/

Russia, Chief Information Officer Magazine

www.cio.ru

Singapore, CIO Asia

www.cio-asia.com

South Korea, CIO Korea

www.ciokorea.com

Sweden, CIO Sweden

www.cio.idg.se

Taiwan, CIO Taiwan

www.cio.com.tw

United Kingdom, CIO Magazine

www.cio.co.uk

CIO CONTACT INFORMATION

Editorial, Advertising and Business Offices:

CXO Media Inc.,
492 Old Connecticut Path, P.O. Box
9208, Framingham, MA 01701-
9208, 508 872-0080.

CIO (ISSN 0894-9301) is published monthly with an additional issue in December. Periodicals postage paid at Framingham, MA, and at additional mailing offices. Canada Publications Mail Agreement Number PM40063731. CANADIAN POSTMASTER: Please return undeliverable copy to P.O. Box 1632, Windsor, ON N9A 7C9.

Reprints & Permissions:

For information about reprints and copyright permissions, please contact The YGS Group, 800-290-5460, ext. 100, cio@theygsgroup.com.

Photocopy Rights: Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by CIO for users through the Copyright Clearance Center, provided that a fee of \$3.50 per copy of the article is paid directly to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01970. www.copyright.com. Please specify: ISSN 0894-9301. Permission to photocopy does not extend to contributed articles followed by this symbol: ‡.

Subscriptions: CIO is free to qualified information executives. To apply, use our online subscription form at <http://www.cio.com/subscription-services>. Subscriptions are also available on a paid basis at a rate of \$129 for the United States and Canada, \$195 International (payable in U.S. funds only) and may be ordered online at <http://www.cio.com/subscription-services>. Please allow four to six weeks for a new subscription to begin. The single copy price is \$9 for the United States and Canada, and \$15 International. Digital annual subscription \$29. Prepayment is required, payable in U.S. funds.

Change of Address: Please go to <http://www.cio.com/subscription-services> and follow the online instructions.

Postmaster: Send change of address to CIO, P.O. Box 489, Northbrook, IL 60065-9816. Printed in the U.S.A.

INDEX OF COMPANIES AND ADVERTISERS

Page numbers refer to the first page of the article(s) in which the company has a substantial mention.

This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

COMPANY INDEX

Accenture 8
Advisory Capital 26
Amgen 26
Bain and Co. 24
CSC Leading Edge Forum 8
Disney ABC Television Group 30
Elavon 25
FICO 18
Georgetown University 18
International Game Technology 18
J. Gold Associates 14
Kohlberg Kravis Roberts 30, 32
Lincoln Trust 25
Mapi Group 24
Monsanto 11
Moor Insights and Strategy 20

NewVantage Partners 12
The North Face 10
Pund-IT 20
Red Robin Gourmet Burgers 10
Sloane Communications 26
Technology Business Research 20
Technomic 11
Tekserve 18
TradeMonster 14
United Orthopedic Group 32
Universal Parks and Resorts 28
Verizon Wireless 16

ADVERTISER INDEX

BMC Software 7
CA C3
CIO Forum on LinkedIn 31

CIO Insider 33
CIO Marketplace 31
CIO Pathways 35
Cisco Systems, Inc. 27
dtSearch 31
Future-State CIO 21
IBM Corp. 2
iDashboards 29
InterSystems 17
NetApp C2
NTT DATA Corp. 13
SanDisk 15
Super Micro Computer, Inc. 5
Unify, formerly Siemens 9
VCE Company, LLC 19
VMware, Inc. C4

Pathways

The Future-State of IT Leadership

Pathways was created for high-potential IT professionals headed toward CIO or other senior leadership positions. Developed with the real-world insights of our member CIOs, Pathways gives you the opportunity to chart your own course based on your unique development goals and career path.



Proven IT Leadership Development Designed and Led by Future-State CIOs

- » Chart your own path based on career aspirations and goals
- » Identify opportunities across known IT competencies
- » Learn from high-profile, experienced CIO mentors
- » Tailor participation within three areas of professional development
- » Utilize Boston University and Harvard Business Publishing courseware

Start Your Journey Today!

Visit: council.cio.com/pathways

Call: +1 508.766.5696

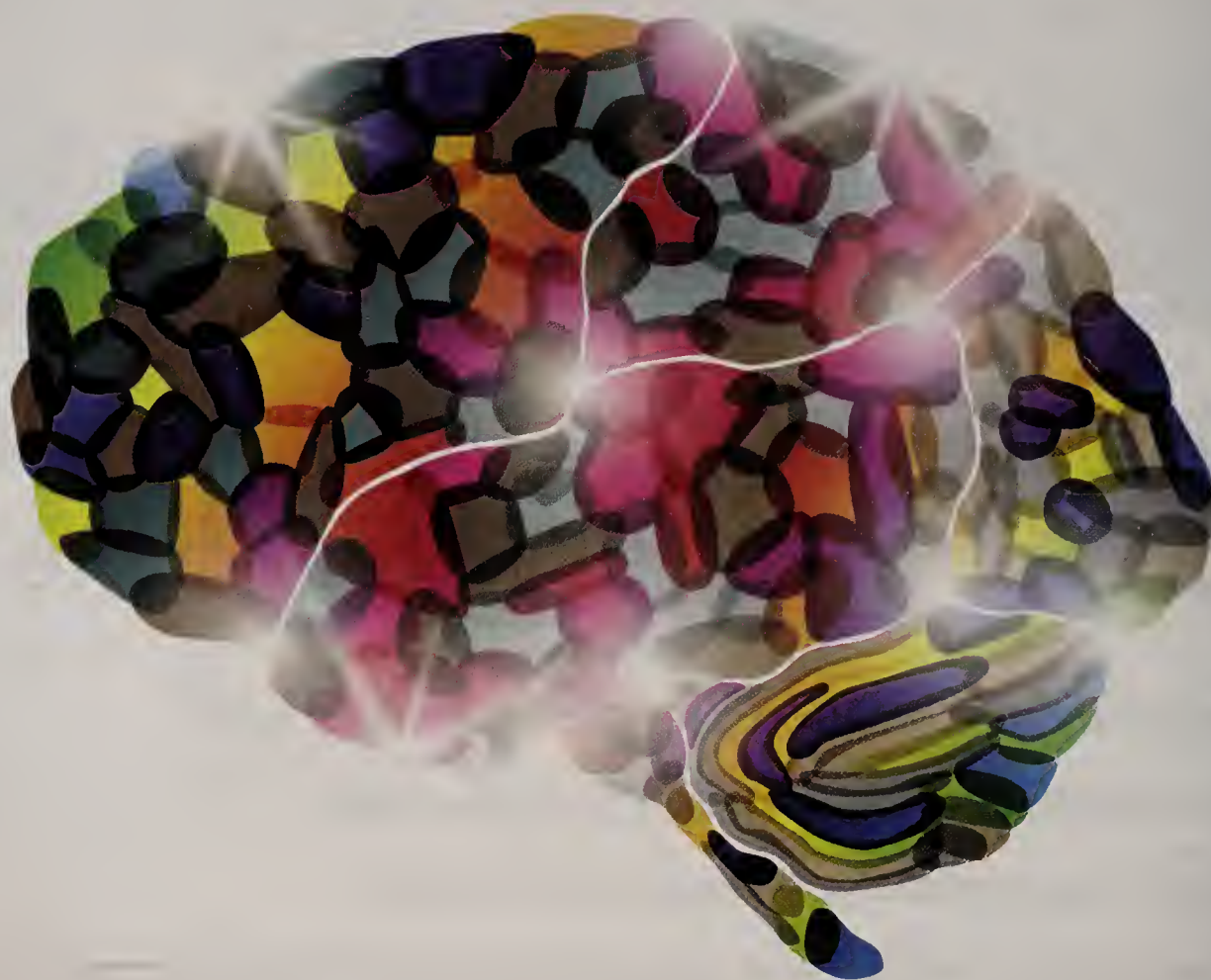
Email: cec_info@cio.com

Powered by



CIO Executive Council
Leaders Shaping the Future of Business





Dream State

Memories, dreams and mental images are unique to each person and usually impossible to share, but researchers at the University of California, Berkeley may now be able to re-create them using technology. Three people watched a set of movie trailers while a special MRI machine recorded their brain activity. Researchers then built models of the brain responses to match, second-by-second, what was happening in the videos. To test their work, researchers fed 18 million seconds of YouTube videos into the simulation system, which used the brain models to predict what video content the test subjects likely watched. The software created images that were blurry but consistent in color and shape with the real videos. Researcher Thomas Naselaris hopes the technology can someday help doctors communicate with patients who can't speak. "If you had a patient in a vegetative state, it could be very useful to give access to the subjective contents of their minds."

—Lauren Brousell

VIEWPOINT



David Cramer

VICE PRESIDENT,
PRODUCT MANAGEMENT,
CA TECHNOLOGIES

David Cramer joined CA Technologies in 2009 and serves as Vice President of Product Management for CA's Application Delivery business. David's focus is on Continuous Delivery, Cloud Management and web scale IT. Before joining CA, David held executive positions at AlterPoint (sold to Versata), Motive (sold to Lucent), NetSolve (sold to Cisco), and Nortel Networks. David received his MBA from Southern Methodist University and a BS in Finance from Georgia State University.

FOR MORE INFORMATION:
please visit www.ca.com/techinsights/devops



Making DevOps Pay Off

As companies speed up software delivery, interest in DevOps heats up.

A recent IDG Research Services survey of IT professionals reveals that nearly 90 percent firmly believe in the value of DevOps—essentially, bringing developers and IT operations together to deliver software faster. But at the same time, 60 percent of respondents find it challenging to make the business case for DevOps.

David Cramer, vice president of product management at CA Technologies, talks about the challenges and benefits of DevOps in the enterprise.

What's behind the intense interest in DevOps?

Companies like Amazon, LinkedIn and Facebook have built large Web businesses through their ability to roll out new features quickly. They did this through standardiza-

tion and automation, and by adopting lean principles that drove costs down while speeding up delivery.

Because of their success with this "continuous delivery," we now expect all software to work this way. That's the real driver behind DevOps. It's a better way to deliver software.

Why is it so difficult?

There are several problems. DevOps requires discipline across development, test, operations, database, security and the network groups. DevOps has to be a cross-team effort, and it's sometimes hard to build consensus. But there can also be confusion about what DevOps is. Is it a new tool? Is it code management? Is it a new process?

Also, a lot of companies don't think DevOps applies to them, only to large Web-based businesses. But when you consider mobile or cloud services, it becomes clear that every application development team will benefit, even

those that do not release software frequently. And that speed and quality is a tangible benefit to the business—you can offer new features and drive revenue because you're releasing features faster than the competition.

What can IT do to make DevOps succeed?

It must automate as much of the application release process as possible. Extend the automation so that new code is automatically installed in the appropriate environment. And, of course, integrate it into the change tracking and approval processes.

IT must also develop and test in environments that are exactly like the production environment. This usually doesn't happen because production is complex and expensive. But when an application needs to interface with SAP or an external service like PayPal, or

if it needs to get data from a database running on a mainframe, that extends development, frequently by weeks. Customers need to use service virtualization to simulate production environments in development and testing.

Doesn't the challenge go beyond technology?

Absolutely. You can buy any tool you want, but if you don't change your processes, you won't benefit. I have seen companies transform themselves by making the developers support the production environment for six months, which reinforces thinking about the whole service and not just the code. Others have moved teams onto the same floor to break down functional barriers.

It's also important to establish the key metrics to track progress and to use dashboards to track progress. For teams to work well together, they have to have an objective and a way to measure progress toward the goal. ■

"You can buy any tool you want, but if you don't change your processes, you won't benefit."

The Software-Defined Data Center.

The IT innovation that's built to lead your business into the future.

VMware's Software-Defined Data Center is enabling businesses to embrace IT-as-a-Service. Now you can take the investments you've made in technology and reach new transformational levels of agility and efficiency. From extending your data center to a hybrid cloud, to delivering secure workforce mobility, to providing one unified and automated management system, VMware is driving the next generation of IT. Helping your business innovate now. And well into the future.

vmware.com/vmwarestory

vmware®